

WHAT IS CLAIMED IS:

1. A speed controller for a motor vehicle comprising:

5 an input device to receive input of a desired speed by a driver, the input device having a plurality of operating modes differing in functional scope which can be activated in different speed ranges, a change in a current operating mode which results in the loss of a safety-relevant function occurring solely via a command of the driver; and

10 a decision unit to determine, using predefined criteria, whether a change in the desired speed input by the driver is to be interpreted as a command for changing the current operating mode.

15 2. The speed controller of claim 1, further comprising:

a display device adapted to display the current operating mode.

3. The speed controller of claim 1, further comprising:

20 a signal device to signal to the driver a change in the current operating mode.

4. The speed controller of claim 1, wherein a first of the plurality of operating modes is an operating mode for higher vehicle speeds that is activatable only above a limiting speed, and a second of the plurality of operating modes is for lower vehicle speeds, the second operating mode being activatable in a speed range having an upper limit at least equal to the limiting speed and providing in certain instances an automatic braking of 30 the vehicle to a standstill.

5. The speed controller of claim 4, wherein the decision unit automatically causes a change from the first operating mode into second operating mode when the speed of the vehicle decreases to 35 below the limiting speed and then automatically limits the desired speed to a value permitted in the second operating mode.

6. The speed controller of claim 5, wherein the decision unit automatically causes a change from the first operating mode into the second operating mode when the desired speed is lower than the limiting speed  $V_s$  and when the actual speed of the vehicle  
5 is less than  $V_s + h_1$ , where  $h_1$  has a non-negative value.

7. The speed controller of claim 5, wherein the decision unit automatically causes the change from the first operating mode into the second operating mode when one of the following occur:

10       a) the desired speed is increased to a threshold value which is at least equal to the limiting speed; and  
            b) the actual speed of the vehicle does not increase to the limiting speed within a predefined time interval.

15       8. The speed controller of claim 4, wherein the decision unit automatically causes the change from the second operating mode into the first operating mode when the desired speed is increased by the driver to a value that is greater than  $V_s + h_1$ ,  
             $V_s$  being the limiting speed and  $h_1$  having a non-negative value.

20       9. The speed controller of claim 4, wherein the decision unit deactivates the speed controller when, in the second operating mode, the desired speed is less than or equal to the limiting speed  $V_s$  and the actual speed is greater than a threshold value  
25        $V_s + h_2$ , where  $h_2$  has a non-negative value.

30       10. The speed controller of claim 5, wherein the decision unit deactivates the speed controller when, in the second operating mode for lower speeds, the speed of the vehicle increases, and the driver does not input a new desired speed, while the actual speed of the vehicle lies within a predefined speed range.

35       11. The speed controller of claim 4, wherein the decision unit activates the speed controller in the first operating mode when, upon the input of the desired speed, the actual speed of the vehicle is greater than the limiting speed and the decision unit activates the speed controller in the second operating mode and

limits the desired speed when, upon the input of the desired speed, the actual speed of the vehicle is less than or equal to the limiting speed.

5       12. The speed controller of claim 11, wherein the decision unit activates the speed controller in the second operating mode only when a target object is located by a distance sensor system and the distance from the vehicle to this target object lies within a predefined range.

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13. The speed controller of claim 12, wherein the decision unit automatically deactivates the speed controller in the second operating mode when the target object is not detected lost and is not re-detected within a predefined time span.

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14. The speed controller of claim 12, wherein the decision unit automatically deactivates the speed controller in the second operating mode when the distance between the vehicle and the target object becomes greater than a predefined value.

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